TANZANIA

MINISTRY OF HEALTH

District Health Expenditure Mapping:

A Budget Analysis Tool for Council Health Management Teams

Don de Savigny[1,2], Godfrey Munna[1], Conrad Mbuya[1,3], Leslie Mgalula[1,4], Harun Machibya[5], Saidi Mkikima[6], Eleuther Mwageni[1,7,8], Harun Kasale[1,3], and Graham Reid[1,2]

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Abstract

The *District Health Expenditure Mapping* Tool has been developed by the Ministry of Health's Tanzania Essential Health Interventions Project (TEHIP) in response to a District need and demand for a one-page summary and one-page graphical "picture" of their comprehensive, annual Council Health Plan.

This tool is intended to help Districts understand the accumulated total financial resources they have budgeted (or expended) in their plan; the respective sources from which they expect their revenue; and the major interventions and activities to which these funds are allocated.

The tool is based on a matrix relating activities to financial resources such that these health sector allocations can be determined at a glance. The tool calculates both the proportional shares of investment and the absolute per capita investments in the Comprehensive Council Health Plan (CCHP) in terms of all funding partners, and in terms of all core essential health interventions and health system support activities. In anticipation of the National Sentinel System of demographic surveillance sites for burden of disease estimates, it also integrates a *District Burden of Disease Profile* to provide a graphical comparison of the intervention addressable disease burden and the intervention priorities as selected and reflected in Comprehensive Council Health Plan budgets and expenditures. The tool further calculates the relative shares for curative vs. preventive/promotive expenditure; capital vs. recurrent expenditure; and direct support for health service delivery vs. general health system support. Finally, the tool provides additional basic statistics and specific graphs for the newly introduced Sector Wide Approach (SWAp) Council Health Basket Grant portion of the District Health budget and expenditure.

Why is a District Health Expenditure Mapping Tool needed?

Planning and budgeting for the health sector for typical Tanzanian Districts of several hundred thousand population is a complex undertaking (Tanzania Ministry of Health, 1998). One of the most detailed components of any Comprehensive Council Health Plan is the budget. District budgets often exceed 25 pages of detail and can contain in excess of a thousand budgeted items or activities, with hundreds of sub-totals, and dozens of major line items. These budgets are often built up from detailed operational activities and aggregate to total figures that typically run to hundreds of millions of Tanzanian shillings. At the end of

the process it is difficult for Council Health Management Team (CHMT) members, and even the Council Health Planning team itself, to have a good "feel" for the proportional content of their own budgets and plans. Since resource allocation within budgets reflects, to a large extent, the priorities of the Comprehensive Council Health Plan, it is important that the Council Health Planners can examine the final product of their plan in terms of how they have actually allocated their limited resources. Moreover, it is important at the end of the fiscal year, for the planners to be able to apply the same analysis to see whether the planned allocations were achieved in actual expenditure allocations. This need prompted TEHIP to start working in 1997 together with the CHMTs of Morogoro Rural and Rufiji Districts to develop a simple tool for analyzing Council Health Plan budgets and expenditures.

The tool has been in continuous evolution since 1997, and has been piloted for four years in these two districts. In that period a number of additional needs and uses for the District Health Expenditure Mapping Tool have emerged and have been incorporated in the tool.

Why do we need a District Health Expenditure Mapping Tool?

- Need for basic analyses of budget and expenditure to check against priorities (burden of disease), norms and standards;
- Need to reduce complexity of CCHP budgets for CHMT planners;
- Need for a graphical display of complex numeric information;
- Need for comprehensive CCHPs to capture all potential sources of revenue;
- Need for summary information on resource source and allocation for both budgets and expenditures;
- Need to assess CCHP implementation (budget vs expenditure);
- Need for accountability and transparency

One of the early challenges to easy comprehension and analysis of District Health Budgets was the overload of numerical information. Like all TEHIP planning support tools, the District Health Expenditure Mapping Tool has been designed to provide a graphical interface; ie to put numbers into pictures. We have found that this is a more effective means of communicating the core messages contained in complex numerical information contained in budgets and in Health Management Information System (HMIS) data. Hence the District Health Expenditure Mapping Tool provides an array of graphical analyses.

Among other changes, health reforms bring increasing decentralization, diversification of financing, and broader partnerships for health. Modern Comprehensive Council Health Plans need to be increasingly comprehensive and need to reflect the efforts of all partners in the Comprehensive Council Health Plan, whether they are governmental, non-governmental, parastatal, private, or community contributors. Therefore the District Health Expenditure Mapping Tool was designed to capture and reflect these partnerships, and also to be a tool of communication for encouraging more partnership. When partners see their contributions mapped into the total District effort, they can see their roles more clearly and feel more

encouraged to participate in the planning process. This leads to greater transparency and accountability among the partners working in support of the district health system.

The new Tanzanian national guidelines for expenditure of the Council Health Basket Grants come with a set of norms, guidelines, and ceilings that must be met for a sub-set of the District health budget. District Health Expenditure Mapping also provides a separate analysis and graphical display of the Council Health Basket Grant so that compliance with these guidelines can be easily checked.

It is one thing to make a plan. It is quite another thing to implement a plan (Gilson, Kilima, and Tanner, 1994). Too often the planning process stops too soon. Resources that are made available do not always coincide with what was requested in the plan. Once resources arrive, the original plan is often set aside, and implementation is done according to the opportunities provided by the resources. Hence, there needs to be a point at the beginning of the implementation of the plan where the plan is re-set according to actual confirmed resources allocated by the partner-investors in the plan. The District Health Expenditure Mapping Tool is designed to allow this re-setting to be done in a way that minimizes distortion of the original priorities set in the plan.

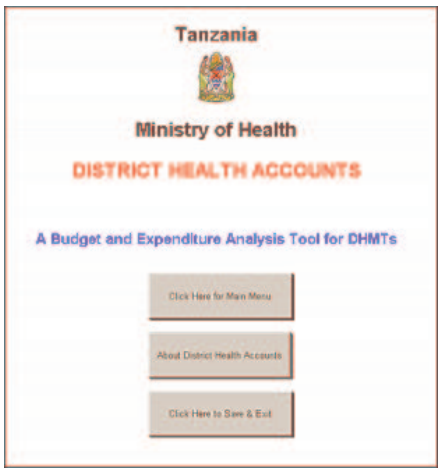
Finally, at the end of the year, there needs to be some reflection on how closely the ambitions of the re-set plan were followed. The same Expenditure Mapping Tool can also be used with actual expenditure data, as well as budget data, and the two can be compared. This is a useful reality check that should be undertaken before embarking on the next planning cycle.

When should the Expenditure Mapping Tool be used?

The District Health Expenditure Mapping Tool is designed for use at three points in the planning and resource allocation cycle of a given fiscal year.

The first time is for the **Draft Plan** prepared during annual Comprehensive Council Health Planning sessions usually four months prior to the start of the fiscal year.

The second time is for the **Final or Actual Budget** at the beginning of the fiscal year once the actual budgetary allocations are known and the plan is recast to reflect fiscal reality.



The third time is for actual **Expenditure** at the end of the fiscal year, when final expenditure is known.
The actual budget and actual expenditure can then be easily compared to assess how closely the District came to realizing its plan. This experience can then be taken into account as the District goes into its next planning cycle. It takes only about 30 minutes to enter the data for one plan and obtain the analyses.

The tool provides, in essence, a practical summary of the Council Health Plan or Expenditure. This is a tool for CHMT District planning, analysis, evaluation, and management. It is not an accounting tool to record expenditures in the chart of accounts (Figure 1).

Figure 1. District Health Expenditure Mapping welcome screen.

How does the Expenditure Mapping Tool work?

The District Health Expenditure Mapping Tool is distributed as a customized Microsoft Excel® program and will run on any Windows based computer having Microsoft Excel® or Microsoft Office®. It can be distributed on any standard 4.5 inch floppy diskette or by e-mail. The file is a blank template and is re-issued in updated form annually. Each annual edition of the tool contains fiscal year specific currency exchange rates and district populations (for capitation in the Council Health Basket Grants) and the latest burden of disease profiles. It also contains useful contemporary information such as the cost of Essential Drug Program kits, TB drugs, Medical Stores Department capitation credits, etc.

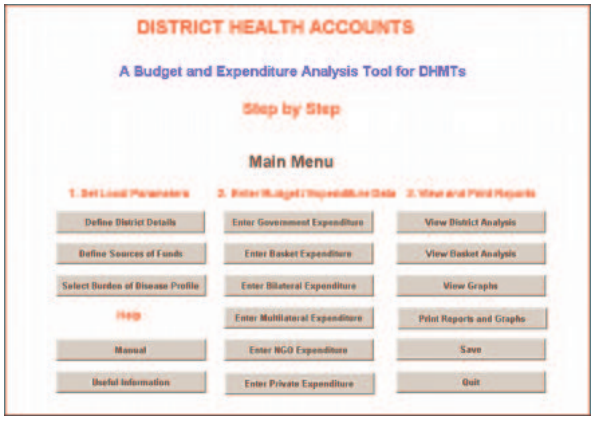


Figure 2. Main Menu of the District Health Expenditure Mapping Tool

The tool is designed for use at the District level. No special computer or spreadsheet skills are required. All functions are menu driven by point-and-click icons (Figure 2). There is a detailed instruction manual built into the tool that can be viewed on screen or printed as required. A glossary of terms and definitions of interventions is also provided.

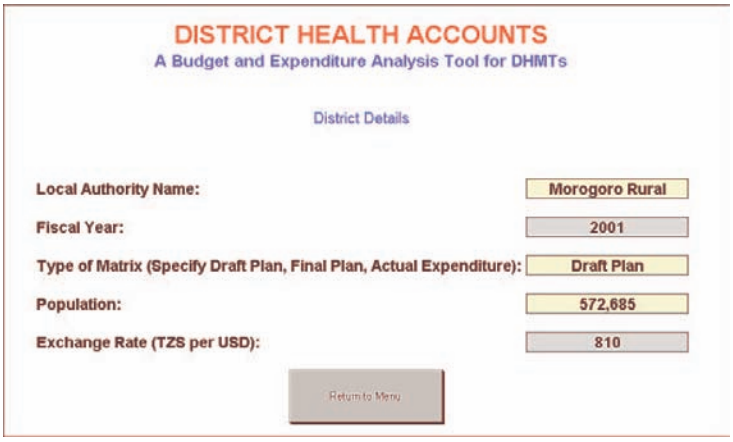


Figure 3. Sample of District Details Entry Form

Information is entered into clearly identified, yellow shaded cells. All other cells and functions are locked so that the tool cannot be inadvertently modified. All calculations, analyses, and graphics are produced automatically following selection from the menu.

The first step in using the Expenditure Mapping template is to enter into the template the local District information such as the name of the District, the district population, and an indication

of whether it is a draft plan, final plan or actual expenditure (Figure 3) and the names of the funding sources in the Comprehensive Council Health Plan (Figure 4). There is then the option to select an appropriate burden of disease profile from the National Sentinel System (NSS) list. For most districts, this function will be disabled until the NSS is fully established. The Burden of Disease is expressed as profiles of intervention addressable shares of the total years of life lost (YLLs) due to cause specific, premature mortality using standard DALY age weighting and discounting (TEHIP, 2000).

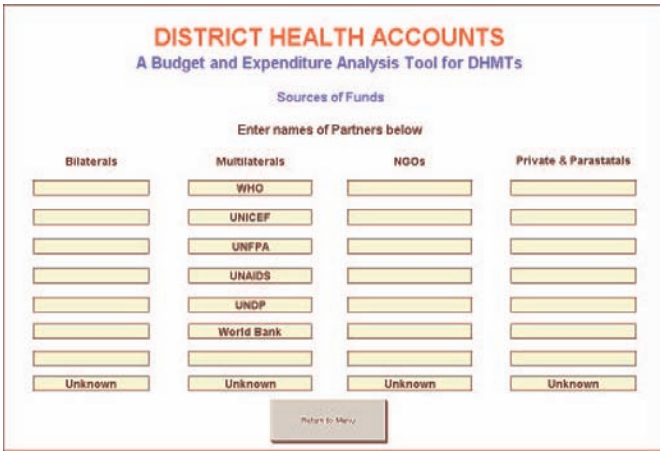


Figure 4. District Funding Partners Entry Sheet

The second step is to enter budgetary or expenditure information against line items and sources of funds. The tool generates a separate matrix sheet for entering such data for each category of funding partner, eg. Central and Local Government, Community, Council Basket, Bilateral, Multilateral, NGO, Private and Parastatal partners (Figure 5). The line items correspond to the Tanzania National Package of Essential Health Interventions (Tanzania Ministry of Health, 2000a), and to the major line items in the chart of accounts for District accounting. Budget or expenditure amounts are entered into the appropriate cells as Tanzanian shillings.

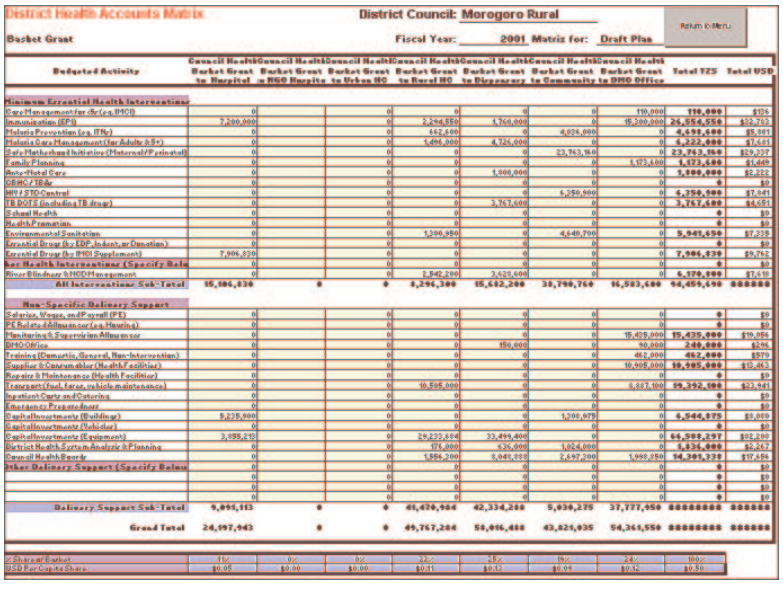
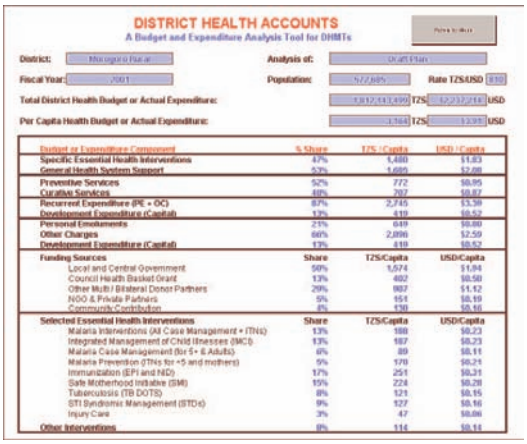


Figure 5. Sample Budget Entry Form

Tabular Reports

Once the total budget or expenditure has been entered, the CHMT can go to the third step, which is to choose to view or print a selection of reports and graphs from analyses of their plan.

The menu allows for two tabular reports. The first report is a one-page summary of the main features of the plan including per capita expenditure in terms of shillings and dollars per capita (Figure 6). It further breaks the expenditure down according to shares for direct health services vs. indirect health system support; curative vs. preventive services; recurrent vs. development expenditure; and personnel emoluments and other charges vs. capital expenditure. Finally it analyses the proportional shares provided by each major group of funding partners (Local and Central Government, Council Health Basket Grant, Other Multi- and Bi-lateral partners, Non-Governmental and Private partners, and Community Contribution.


DISTRICT HEALTH ACCOUNTS

A Budget and Expenditure Analysis Tool for DHMTs

District: Moregoro Rural Analysis of: Draft Plan

Fiscal Year: 2001 Population: 572,685 Rate TZS/USD 810

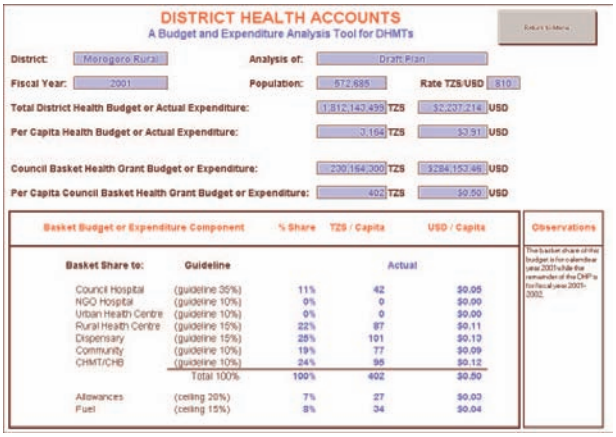
Total District Health Budget or Actual Expenditure: 1,812,140,499 TZS 2,237,214 USD

Per Capita Health Budget or Actual Expenditure: 3,164 TZS 3.91 USD

Budget or Expenditure Component	% Share	TZS / Capita	USD / Capita
Specific Essential Health Interventions	47%	1,480	$1.83
General Health System Support	53%	1,685	$2.08
Preventive Services	52%	772	$0.95
Curative Services	48%	707	$0.87
Recurrent Expenditure (PE + OC)	87%	2,745	$3.39
Development Expenditure (Capital)	13%	419	$0.52
Personal Emoluments	21%	649	$0.80
Other Charges	66%	2,096	$2.59
Development Expenditure (Capital)	13%	419	$0.52
Funding Sources	**Share**	**TZS/Capita**	**USD/Capita**
Local and Central Government	50%	1,574	$1.94
Council Health Basket Grant	13%	402	$0.50
Other Multi / Bilateral Donor Partners	29%	907	$1.12
NGO & Private Partners	5%	151	$0.19
Community Contribution	5%	150	$0.18
Selected Essential Health Interventions	**Share**	**TZS/Capita**	**USD/Capita**
Malaria Interventions (All Case Management + ITNs)	13%	188	$0.23
Integrated Management of Child Illnesses (IMCI)	13%	187	$0.23
Malaria Case Management (for 5+ & Adults)	6%	89	$0.11
Malaria Prevention (ITNs for <5 and mothers)	5%	170	$0.21
Immunization (EPI and NID)	17%	251	$0.31
Safe Motherhood Initiative (SMI)	15%	224	$0.28
Tuberculosis (TB DOTS)	8%	121	$0.15
STI Syndromic Management (STDs)	9%	127	$0.16
Injury Care	3%	47	$0.06
Other Interventions	8%	114	$0.14

Figure 6. Sample Summary Report

The second tabular report is a sub-report focused entirely on the Council Health Basket Grant portion of the Council Health Plan (Figure 7). Again it calculates the per capita expenditure in shillings and dollars to check against the available allocation. It also displays the proportions of the Basket Grant allocated to different levels of the health system, and to different activities (eg. Allowances, Fuel) so that this can be quickly checked against the guidelines and ceilings provided by the Ministry of Health (Tanzania Ministry of Health, 2000b).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Total District Health Budget or Actual Expenditure: 1,812,140,499 TZS 2,237,214 USD

Per Capita Health Budget or Actual Expenditure: 3,164 TZS 3.91 USD

Council Basket Health Grant Budget or Expenditure: 230,164,200 TZS 284,153,46 USD

Per Capita Council Basket Health Grant Budget or Expenditure: 402 TZS $0.50 USD

Basket Budget or Expenditure Component	% Share	TZS / Capita	USD / Capita	Observations
Basket Share to:	**Guideline**		**Actual**	
Council Hospital	(guideline 35%)	11%	42	$0.05
NGO Hospital	(guideline 10%)	0%	0	$0.00
Urban Health Centre	(guideline 10%)	0%	0	$0.00
Rural Health Centre	(guideline 15%)	22%	87	$0.11
Dispensary	(guideline 15%)	25%	101	$0.13
Community	(guideline 10%)	19%	77	$0.09
CHMT/CHB	(guideline 10%)	24%	95	$0.12
	Total 100%	100%	402	$0.50
Allowances	(ceiling 20%)	7%	27	$0.03
Fuel	(ceiling 15%)	8%	34	$0.04

Figure 7. Sample Council Health Basket Grant Report

Graphical Reports

There is a choice of five graphical reports. The first graph (Figure 7) displays shares of the district budget (or expenditure) devoted to essential health interventions (in green) compared with the shares of the expected burden of disease addressed by those interventions (in red). It is not intended that the red and green columns should match but as a general rule of thumb it is worth investing any new resources in large remaining components of the burden of disease if it is clear that there is discordance in resource allocation. One should keep in mind the current coverage of the essential health interventions supported by these budget shares. Interventions with higher coverage will need more resources. This first graph shows intervention resources as shares of the total intervention budget (i.e. proportions). The second graph (Figure 8) shows intervention resources in terms of absolute per capita allocations of budget. Again, one needs to consider coverage when interpreting these graphs. This graph gives more detail by disaggregating some of the larger strategies such as the Safe Motherhood Initiative into individual component interventions. It must be appreciated that a large number of calculations underpin these graphs. For example the content and value of the EDP kit and other drug expenditure is distributed to various interventions according to analyses derived from the TEHIP Cost Information System. The assumptions used in these calculations are available in the on-screen manual built into the tool.

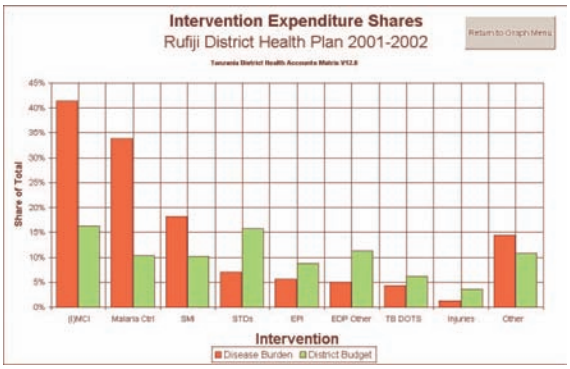

Figure 7. Disease Burden and Budget.

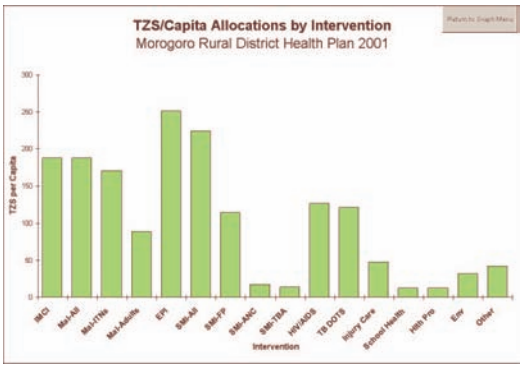

Figure 8. Per Capita Allocations by intervention

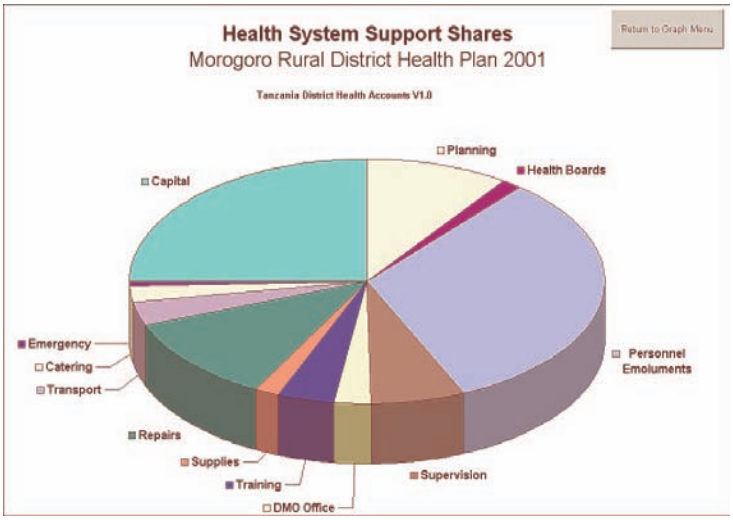

Figure 9. Sample of Health System Support

The third graph (Figure 9) displays shares of the district health budget (or expenditure) in terms of health system support activities. These are general activities that cannot be directly attributed to any particular health intervention and include salaries, capital investments, planning costs, District Health Board costs, etc.

The fourth graph (Figure 10) is specific for the $0.50 per capita budget allocated as a Council Health Basket Grant. The blue bars indicate the pre-loaded Ministry of Health guideline or ceiling level, and the green bars are the allocations made in the planned budget (or expenditure). This is a quick check to see if the plan is in accordance with the expected norms. The Council Health Basket Grant Guidelines need to be consulted with regard to allocations in Districts which do not have a District Hospital or a District Voluntary Agency Hospital, urban health centers, etc.

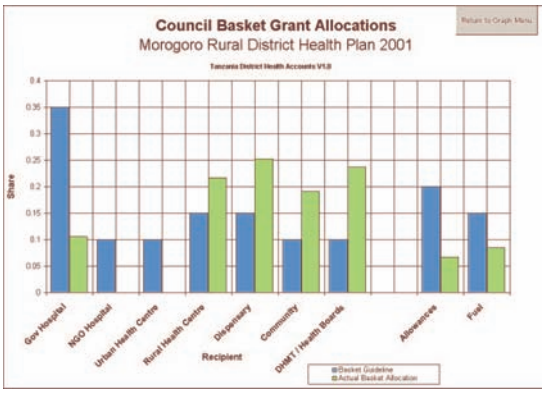

Figure 10. Sample Council Health Basket Grant Guidelines and Allocations

The fifth graph (Figure 11) presents an analysis of the District Health Budget (or expenditure) in terms of the partner contributions to the total budget. This illustrates the importance to try to identify all sources of revenue that are invested in the District's health services as part of a comprehensive Council Health Plan.

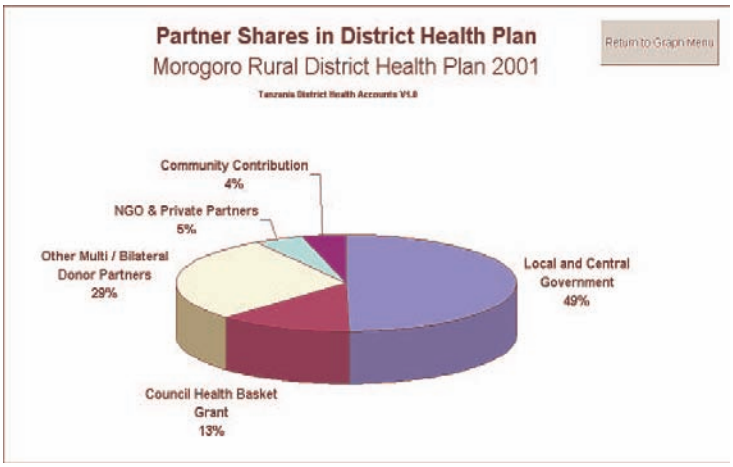

Figure 11. Partner Shares in the Comprehensive Council Health Plan

How does Expenditure Mapping influence district planning?

This is a subject of TEHIP research that is still underway. However a dramatic observation has already been made concerning the substantial increases in resources allocated specifically to under-five mortality following application of the tool (de Savigny et. al. 1999). Morogoro Rural and Rufiji Districts made significant increases in the proportional and absolute contributions to under-five mortality interventions such as IMCI and insecticide treated nets when they realized that relatively little funding was being allocated to this large share of the burden of disease. When simulated basket funding was made available to these districts by TEHIP in 1997 the District Health Expenditure Mapping guided these investments into cost-effective interventions for high disease burdens that were previously under supported. The

two graphs in Figure 12 contrast the planned resource allocations in proportional terms between 1996 prior to use of the tool, and in 1998, the year following the introduction of the tool. Note that the 1998 budget contained additional resources from TEHIP in the same order of magnitude as the current Council Health Basket Grant.

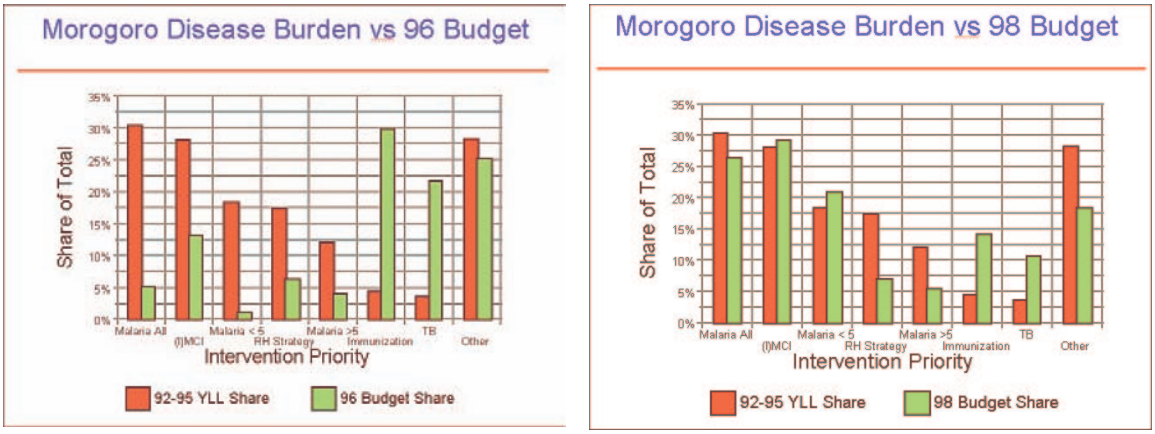

Figure 12. Comparison of Budget Allocations before and after use of the District Health Expenditure Mapping Tool and pilot basket funding in Morogoro Rural District.

Another use of the Expenditure Mapping Tool is to assess how closely the actual expenditure and execution of the Council Health Plan corresponds with the plan itself. Figure 13 shows actual expenditure in 1998 for Morogoro Rural District and this can be compared with the planed expenditure in the 1998 graph in Figure 12.

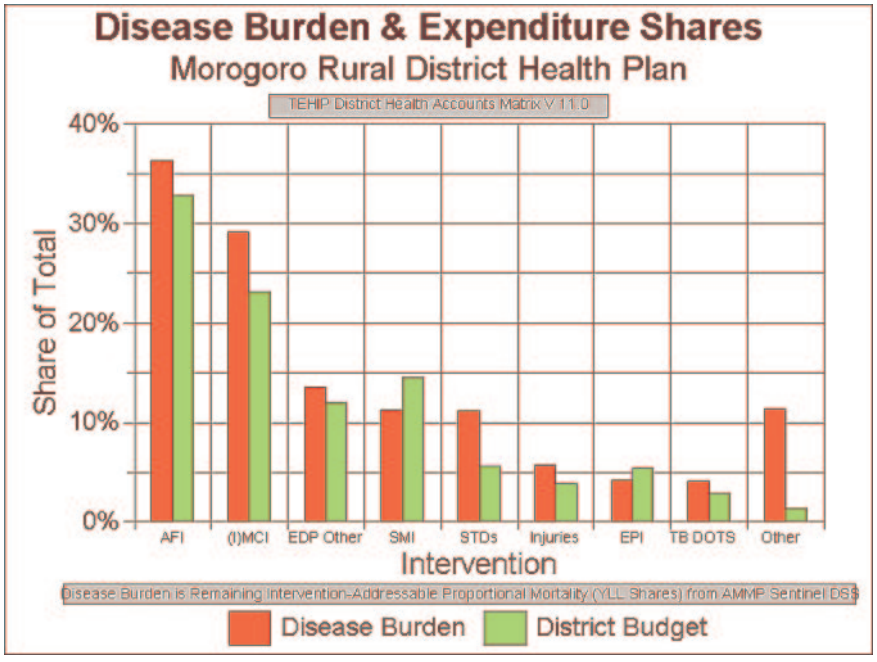

Figure 13. Burden of disease and actual expenditure after the use of the Expenditure Mapping Tool and pilot basket funding in Morogoro Rural District.

Conclusion

In summary, we have developed a novel District Health Expenditure Mapping Tool and are accumulating evidence that it can be used by decentralized decision makers at District level to provide a holistic picture of the district health sector and demonstrate the actual emphasis of spending and the roles of different payers. Computers (with solar power if necessary) are increasingly available to, and used by Council Health Management Teams, especially since the introduction of Council Health Basket Grants. The Expenditure Mapping Tool requires minimal computer skills and has been shown to be easy for Council Health Planners to use at District level. Furthermore, the District Health Expenditure Mapping can guide investment of new resources such as the Council Health Basket Grants and assist districts to take a more evidence-based approach to planning. This Expenditure Mapping Tool provides a gauge to assess how closely Council Health Plans are followed. It also provides a simple medium by which to communicate District burden of disease profiles that will be produced by the National Sentinel System of demographic surveillance and other essential planning information from the Ministry of Health to the District level. When incorporated into the Council Health Plan document, it can help districts identify errors and problems in the plan before submitting it to higher levels. Finally, at higher levels, it can assist the Regional and National levels in assessing and comparing the contents of Council Health Plans.

Many countries, including Tanzania, are embarking on the important enterprise of developing National Health Accounts to assess national level health resource allocation, budgeting and expenditure (Berman, 1997). To our knowledge, the Tanzania District Health Expenditure Mapping Tool is the first example of a Health Accounts approach at the District level.

Acknowledgements

We are grateful for collaboration with the DFID supported Adult Morbidity and Mortality Project of the Ministry of Health and in particular Philip Setel, David Whiting, Honorati Masanja and Robert Mswia who provided support to the demographic surveillance systems in Morogoro Rural and Rufiji Districts.

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